WE CLAIM:

1. A polyurethane elastomer comprising the reaction product of:

a polyisocyanate prepolymer formed by reacting an isocyanate with a polyol, said polyisocyanate prepolymer being present in an amount of from 45 to 70 weight percent based on total weight of the elastomer composition;

a polyether polyol prepolymer present in an amount of from 25 to 50 weight percent based on total weight of the elastomer composition; and

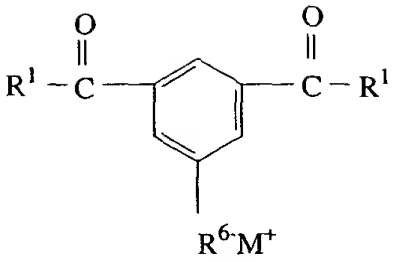
a hardener mixture comprising at least one additional polyol and at least one charge-control agent, the hardener mixture being present in an amount of from 1 to 25 weight percent of the total elastomer composition,

the amounts of the polyisocyanate prepolymer, the polyether polyol, and hardener mixture being selected such that the equivalent ratio of hydroxyl functionality to isocyanate functionality is from 0.96 to 1.04.

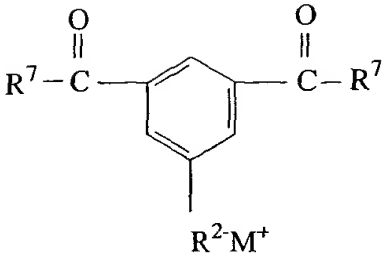
2. The elastomer of Claim 1 wherein the charge-control agent is a polyol capable of being copolymerized with the polyisocyanate prepolymer, the polyether polyol, and the hardener mixture.

3. The elastomer of Claim 2 wherein the charge-control agent is a polyol charge-control agent selected from at least one of formula (I) or formula (II):

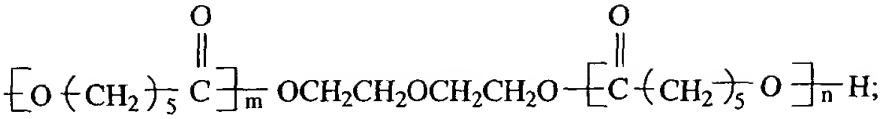
(I)



(II)



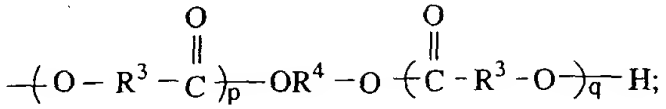
wherein R^1 represents:



R^6 represents sulfonate, oxyphenylene sulfonate, oxycyclohexylene sulfonate, or p-toluenesulfonamidosulfonyl;

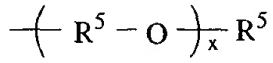
R^2 represents oxyphenylene sulfonate, oxycyclohexylene sulfonate, or p-toluenesulfonamidosulfonyl;

R^7 represents:



R^3 represents a straight or branched chain alkylene group having 2 to 7 carbon atoms;

R^4 is the same as R^3 or is



R^5 is the same as R^3;

x is 1 to 10;

m and n are integers which together are of sufficient value to achieve an R^1 weight average molecular weight of 300 to 30,000;

p and q are integers which together are of sufficient value to achieve an R^7 weight average molecular weight of 300 to 30,000; and

M represents hydrogen, an alkali metal, ammonium, or $P^+(C_6H_5)_3CH_3$.

4. The elastomer of Claim 1 wherein the charge-control agent is poly (oxy (1-oxo-1,6-hexanediyl)),alpha, alpha' oxydi-2,1-ethanediyl) bis(w-hydroxy-5-sulfo-1,3-benzenedicarboxylate (2:1), ion (1-) methylphenylphosphonium.

5. The elastomer of Claim 3 wherein x is from 2 to 7.

6. The elastomer of Claim 3 wherein the charge-control agent is present in an amount of less than 2 weight percent based on total weight of the elastomer.

7. The elastomer of Claim 3 wherein the charge-control agent is present in an amount of less than 1 weight percent based on total weight of the elastomer.

8. The elastomer of Claim 3 wherein the charge-control agent is present in an amount of from 0.4 to 0.7 weight percent based on total weight of the elastomer.

9. The elastomer of Claim 1 having a resistivity of less than $6X10^9$ ohm-cm.

10. A shaped article comprising the elastomer of Claim 1.

11. A transfer roller suitable for use in an electrophotographic process comprising the elastomer of Claim 1.

12. The transfer roller of Claim 11 wherein the elastomer maintains a resistivity below $6X10^9$ ohm-cm for from 600,000 to 1,000,000 images.

13. The transfer roller of Claim 11 wherein the elastomer maintains a resistivity below $6X10^9$ ohm-cm for at least 1,000,000 images.

14. The transfer roller of Claim 11 wherein the elastomer maintains a resistivity below $6X10^9$ ohm-cm for at least 2,000,000 images.

15. A shaped article comprising:

an electrically conducting core; and

a layer of a polyurethane elastomer disposed on said core, the elastomer comprising the reaction product of:

a polyisocyanate prepolymer formed by reacting an isocyanate with a polyol, said polyisocyanate prepolymer being present in an amount of from 45 to 70 weight percent based on total weight of the elastomer composition;

a polyether polyol prepolymer present in an amount of from 25 to 50 weight percent based on total weight of the elastomer composition; and

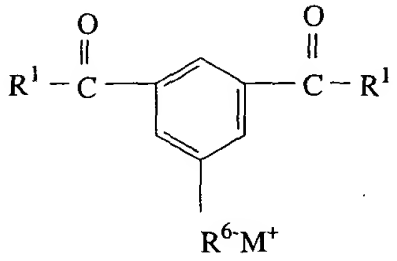
a hardener mixture comprising at least one additional polyol and at least one charge-control agent, the hardener mixture being present in an amount of from 1 to 25 weight percent of the total elastomer composition,

the amounts of the polyisocyanate prepolymer, the polyether polyol, and hardener mixture being selected such that the equivalent ratio of hydroxyl functionality to isocyanate functionality is from 0.96 to 1.04.

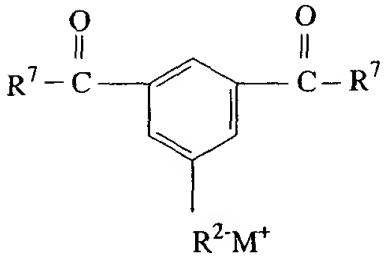
16. The article of Claim 15 wherein the charge-control agent is a polyol capable of being copolymerized with the polyisocyanate prepolymer, the polyether polyol, and the hardener mixture.

17. The article of Claim 16 wherein the charge-control agent is a polyol charge-control agent selected from at least one of formula (I) or formula (II):

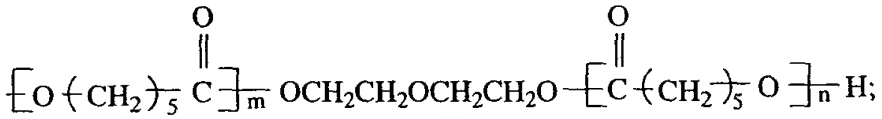
(I)



(II)



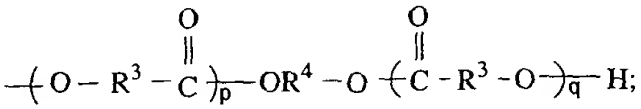
wherein R^1 represents:



R^6 represents sulfonate, oxyphenylene sulfonate, oxycyclohexylene sulfonate, or p-toluenesulfonamidosulfonyl;

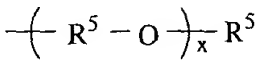
R^2 represents oxyphenylene sulfonate, oxycyclohexylene sulfonate, or p-toluenesulfonamidosulfonyl;

R^7 represents:



R^3 represents a straight or branched chain alkylene group having 2 to 7 carbon atoms;

R^4 is the same as R^3 or is



R^5 is the same as R^3;

x is 1 to 10;

m and n are integers which together are of sufficient value to achieve an R^1 weight average molecular weight of 300 to 30,000;

p and q in formula (II) are integers which together are of sufficient value to achieve an R^7 weight average molecular weight of 300 to 30,000; and

M represents hydrogen, an alkali metal, ammonium, or $P^+(C_6H_5)_3CH_3$.

18. The article of Claim 15 wherein the charge-control agent is poly (oxy (1-oxo-1,6-hexanediyl)),alpha, alpha' oxydi-2,1-ethanediyl) bis(w-hydroxy-5-sulfo-1,3-benzenedicarboxylate (2:1), ion (1-) methylphenylphosphonium.

19. The article of Claim 17 wherein x is from 2 to 7.

20. The article of Claim 17 wherein the charge-control agent is present in an amount of less than 2 weight percent based on total weight of the elastomer.

21. The article of Claim 17 wherein the charge-control agent is present in an amount of less than 1 weight percent based on total weight of the elastomer.

22. The article of Claim 17 wherein the charge-control agent is present in an amount of from 0.4 to 0.7 weight percent based on total weight of the elastomer.

23. The article of Claim 15 wherein the core is cylindrical and the layer of the polyurethane elastomer is disposed on an outer surface of the core.

24. The article of Claim 23 wherein the core is a solid rod, rigid hollow cylinder, or tubular sleeve.

25. A polyurethane elastomer comprising the reaction product of:

a polyisocyanate prepolymer formed by reacting an isocyanate with a polyol, said polyisocyanate prepolymer being present in an amount of from 45 to 70 weight percent based on total weight of the elastomer composition;

a polyether polyol prepolymer present in an amount of from 25 to 50 weight percent based on total weight of the elastomer composition; and

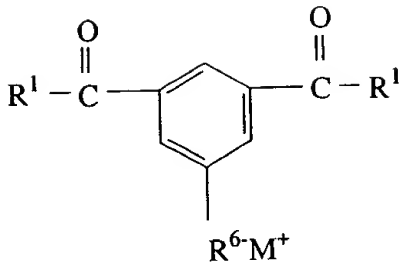
a hardener mixture comprising at least one additional polyol and at least one charge-control agent capable of being copolymerized with the polyisocyanate prepolymer, the polyether polyol prepolymer, and the hardener mixture such that the charge-control agent is covalently bonded to the polyurethane elastomer, the hardener mixture being present in an amount of from 1 to 25 weight percent of the total elastomer composition,

the amounts of the polyisocyanate prepolymer, the polyether polyol prepolymer, and hardener mixture being selected such that the equivalent ratio of hydroxyl functionality to isocyanate functionality is from 0.96 to 1.04, and the charge-control agent is present in an amount of less than 2 weight percent based on total weight of the elastomer.

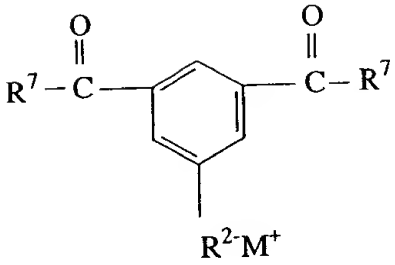
26. The elastomer of Claim 25 wherein the charge-control agent is a polyol comprising an ionic functional group.

27. The elastomer of Claim 25 wherein the charge-control agent is a polyol charge-control agent selected from at least one of formula (I) or formula (II):

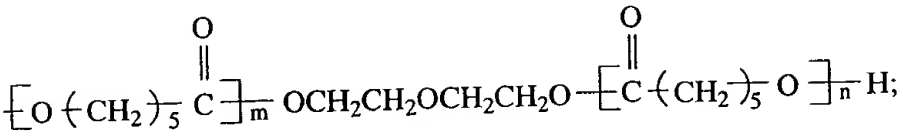
(I)



(II)



wherein R^1 represents:



R^6 represents sulfonate, oxyphenylene sulfonate, oxycyclohexylene sulfonate, or p-toluenesulfonamidosulfonyl;

R^2 represents oxyphenylene sulfonate, oxycyclohexylene sulfonate, or p-toluenesulfonamidosulfonyl;

R^7 represents:

$$-\left(O-R^3-\overset{O}{\overset{\|}{C}}\right)_p-OR^4-O-\left(\overset{O}{\overset{\|}{C}}-R^3-O\right)_q-H;$$

R^3 represents a straight or branched chain alkylene group having 2 to 7 carbon atoms;

R^4 is the same as R^3 or is

$$-\left(R^5-O\right)_x-R^5$$

R^5 is the same as R^3;

x is 1 to 10;

m and n are integers which together are of sufficient value to achieve an R^1 weight average molecular weight of 300 to 30,000;

p and q are integers which together are of sufficient value to achieve an R^7 weight average molecular weight of 300 to 30,000; and

M represents hydrogen, an alkali metal, ammonium, or $P^{+}(C_6H_5)_3CH_3$.

28. The elastomer of Claim 25 wherein the charge-control agent is poly (oxy (1-oxo-1,6-hexanediyl)),alpha, alpha' oxydi-2,1-ethanediyl) bis(w-hydroxy-5-sulfo-1,3-benzenedicarboxylate (2:1), ion (1-) methylphenylphosphonium.

29. The elastomer of Claim 27 wherein x is from 2 to 7.

30. The elastomer of Claim 27 wherein the charge-control agent is present in an amount of less than 1 weight percent based on total weight of the elastomer.

31. The elastomer of Claim 27 wherein the charge-control agent is present in an amount of from 0.4 to 0.7 weight percent based on total weight of the elastomer.

32. The elastomer of Claim 25 having a resistivity of less than $6X10^9$ ohm-cm.

33. A shaped article comprising the elastomer of Claim 25.

34. A transfer roller suitable for use in an electrophotographic process comprising the elastomer of Claim 25.

35. The transfer roller of Claim 34 wherein the elastomer maintains a resistivity below $6X10^9$ ohm-cm for from 600,000 to 1,000,000 images.

36. The transfer roller of Claim 34 wherein the elastomer maintains a resistivity below $6X10^9$ ohm-cm for at least 1,000,000 images.

37. The transfer roller of Claim 34 wherein the elastomer maintains a resistivity below $6X10^9$ ohm-cm for at least 2,000,000 images.

38. A shaped article comprising:

an electrically conducting core; and

a layer of a polyurethane elastomer disposed on said core, the elastomer comprising the reaction product of:

a polyisocyanate prepolymer formed by reacting an isocyanate with a polyol, said polyisocyanate prepolymer being present in an amount of from 45 to 70 weight percent based on total weight of the elastomer composition;

a polyether polyol prepolymer present in an amount of from 25 to 50 weight percent based on total weight of the elastomer composition; and

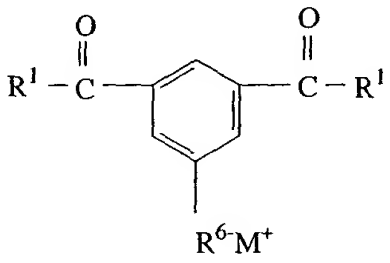
a hardener mixture comprising at least one additional polyol and at least one charge-control agent capable of being copolymerized with the polyisocyanate prepolymer, the polyether polyol prepolymer, and the hardener mixture such that the charge-control agent is covalently bonded to the polyurethane elastomer, the hardener mixture being present in an amount of from 1 to 25 weight percent of the total elastomer composition,

the amounts of the polyisocyanate prepolymer, the polyether polyol prepolymer, and the hardener mixture being selected such that the equivalent ratio of hydroxyl functionality to isocyanate functionality is from 0.96 to 1.04 and the charge-control agent is present in an amount of less than 2 weight percent based on total weight of the elastomer.

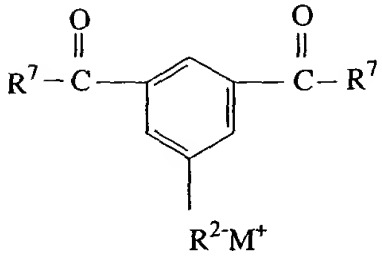
39. The article of Claim 38 wherein the charge-control agent is a polyol comprising an ionic functional group.

40. The article of Claim 38 wherein the charge-control agent is a polyol charge-control agent selected from at least one of formula (I) or formula (II):

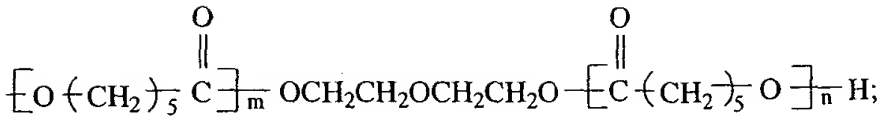
(I)



(II)



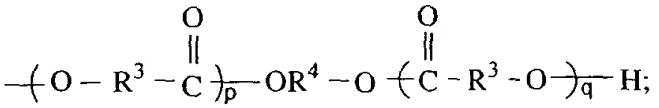
wherein R^1 represents:



R^6 represents sulfonate, oxyphenylene sulfonate, oxycyclohexylene sulfonate, or p-toluenesulfonamidosulfonyl;

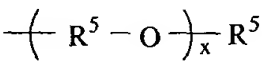
R^2 represents oxyphenylene sulfonate, oxycyclohexylene sulfonate, or p-toluenesulfonamidosulfonyl;

R^7 represents:



R^3 represents a straight or branched chain alkylene group having 2 to 7 carbon atoms;

R^4 is the same as R^3 or is



R^5 is the same as R^3;

x is 1 to 10;

m and n are integers which together are of sufficient value to achieve an R^1 weight average molecular weight of 300 to 30,000;

p and q are integers which together are of sufficient value to achieve an R^7 weight average molecular weight of 300 to 30,000; and

M represents hydrogen, an alkali metal, ammonium, or $P^+(C_6H_5)_3CH_3$.

41. The article of Claim 38 wherein the charge-control agent is poly (oxy (1-oxo-1,6-hexanediyl)),alpha, alpha' oxydi-2,1-ethanediyl) bis(w-hydroxy-5-sulfo-1,3-benzenedicarboxylate (2:1), ion (1-) methylphenylphosphonium.

42. The article of Claim 40 wherein x is from 2 to 7.

43. The article of Claim 40 wherein the charge-control agent is present in an amount of less than 1 weight percent based on total weight of the elastomer.

44. The article of Claim 40 wherein the charge-control agent is present in an amount of from 0.4 to 0.7 weight percent based on total weight of the elastomer.

45. The article of Claim 38 wherein the core is cylindrical and the layer of the polyurethane elastomer is disposed on an outer surface of the core.

46. The article of Claim 38 wherein the core is a solid rod, rigid hollow cylinder, or flexible sleeve.

47. A polyurethane elastomer comprising:

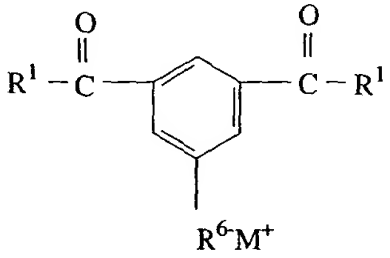
a polyisocyanate prepolymer formed by reacting an isocyanate with a polyether polyol, said polyisocyanate prepolymer being present in an amount of from 45 to 70 weight percent based on total weight of the elastomer composition;

a polyether polyol prepolymer present in an amount of from 25 to 50 weight percent based on total weight of the elastomer composition; and

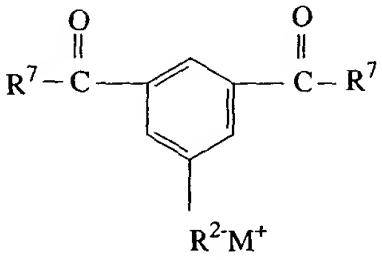
a hardener mixture comprising at least one additional polyol and at least one polyol charge-control agent, the hardener mixture being present in an amount of from 1 to 25 weight percent of the total elastomer composition,

the amounts of the polyisocyanate prepolymer, the polyether polyol prepolymer, and the hardener mixture being selected such that the equivalent ratio of hydroxyl functionality to isocyanate functionality is from 1.00 to 1.04, and the charge-control agent is present in an amount of less than 1 weight percent based on total weight of the elastomer, the polyol charge-control agent being selected from at least one of formula (I) or formula (II):

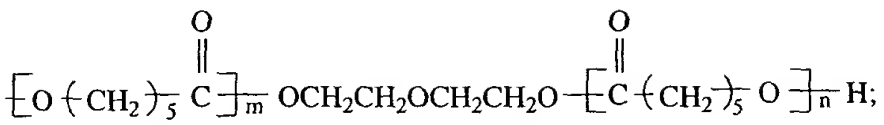
(I)



(II)



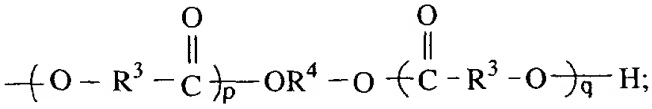
wherein R^1 represents:



R^6 represents sulfonate, oxyphenylene sulfonate, oxycyclohexylene sulfonate, or p-toluenesulfonamidosulfonyl;

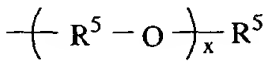
R^2 represents oxyphenylene sulfonate, oxycyclohexylene sulfonate, or p-toluenesulfonamidosulfonyl;

R^7 represents:



R^3 represents a straight or branched chain alkylene group having 2 to 7 carbon atoms;

R^4 is the same as R^3 or is



R^5 is the same as R^3;

x is from 2 to 7;

m and n are integers which together are of sufficient value to achieve an R^1 weight average molecular weight of 300 to 30,000;

p and q in are integers which together are of sufficient value to achieve an R^7 weight average molecular weight of 300 to 30,000; and

M represents hydrogen, an alkali metal, ammonium, or $P^+(C_6H_5)_3CH_3$.

48. A shaped article comprising:

an electrically conducting core; and

a layer of a polyurethane elastomer disposed on said core, the elastomer comprising:

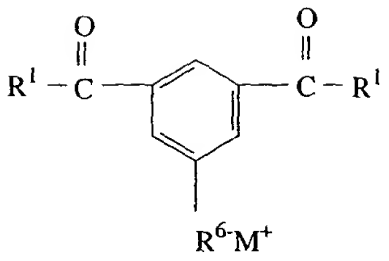
a polyisocyanate prepolymer formed by reacting an isocyanate with a polyether polyol, said polyisocyanate prepolymer being present in an amount of from 45 to 70 weight percent based on total weight of the elastomer composition;

a polyether polyol prepolymer present in an amount of from 25 to 50 weight percent based on total weight of the elastomer composition; and

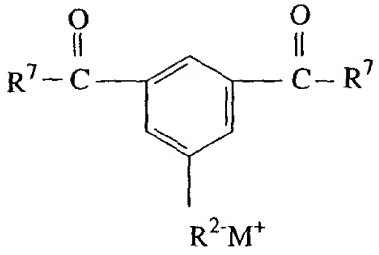
a hardener mixture comprising at least one additional polyol and at least one polyol charge-control agent, the hardener mixture being present in an amount of from 1 to 25 weight percent of the total elastomer composition,

the amounts of the polyisocyanate prepolymer, the polyether polyol prepolymer, and the hardener mixture being selected such that the equivalent ratio of hydroxyl functionality to isocyanate functionality is from 1.00 to 1.04, and the charge-control agent is present in an amount of less than 1 weight percent based on total weight of the elastomer, the polyol charge-control agent being selected from at least one of formula (I) or formula (II):

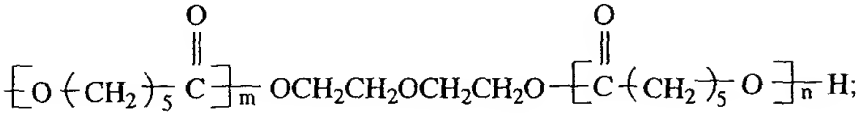
(I)



(II)



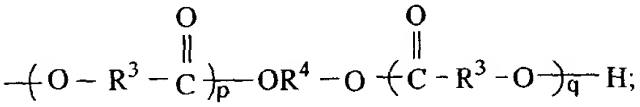
wherein R^1 represents:



R^6 represents sulfonate, oxyphenylene sulfonate, oxycyclohexylene sulfonate, or p-toluenesulfonamidosulfonyl;

R^2 represents oxyphenylene sulfonate, oxycyclohexylene sulfonate, or p-toluenesulfonamidosulfonyl;

R^7 represents:



R^3 represents a straight or branched chain alkylene group having 2 to 7 carbon atoms;

R^4 is the same as R^3

$$-\left(R^5-O\right)_x R^5$$

R^5 is the same as R^3;

x is from 2 to 7;

m and n are integers which together are of sufficient value to achieve an R^1 weight average molecular weight of 300 to 30,000;

p and q are integers which together are of sufficient value to achieve an R^7 weight average molecular weight of 300 to 30,000; and

M represents hydrogen, an alkali metal, ammonium, or $P^+(C_6H_5)_3CH_3$.